

REMARKS

General Remarks

With this Amendment, Applicants add new Claims 10-12 and amend Claims 2, 3, and 6-9. No new matter is added. Therefore, Claims 2-12 are all the claims currently pending in the present application.

Claim 6 stands rejected under 35 U.S.C. § 102(e) as allegedly anticipated by Okazawa, U.S. Patent No. 5,937,148 (“Okazawa”). Claims 2-5 and 7-9 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over Okazawa, in view of Spackman, U.S. Patent No. 5,714,975 (“Spackman”), and JP 64-20185. Applicants respectfully traverse these rejections as shown below.

Claim 6

With respect to the Examiner’s §102(e) rejection of Claim 6 over Okazawa, Applicants respectfully submit that Okazawa fails to disclose or suggest an image-processing dedicated control circuit, as claimed, having an image memory for temporarily storing image data.

As shown in Fig. 1 of the present application, image memory RAM 17 is located within the control circuit 16 (an ASIC). In contrast, the RAM 116 of Okazawa corresponds to the SDRAM 20 of the present invention. Okazawa fails to disclose an image-processing dedicated control circuit, and further fails to disclose an image memory for temporarily storing image data within such a control circuit, as claimed.

Additionally, Applicants submit that Okazawa fails to disclose or suggest a print controller comprising an interface circuit, as claimed.

The Examiner refers to interface section 150 of Fig. 1 and col. 4, lns. 54-58 of Okazawa to disclose this limitation. (Office Action, p. 3). However, contrary to the apparent assertion of the Examiner, the interface section 150 as described in Okazawa and as shown in Fig. 1 is clearly not comprised within the controller section 110, and therefore it does not meet the claim requirement of a print controller comprising an interface circuit.

For at least these reasons, Applicants submit that Claim 6 is not anticipated by Okazawa and respectfully request that the Examiner's §102(e) rejection of Claim 6 be reconsidered and withdrawn.

Claims 2-5 and 7-9

With respect to the Examiner's §103(a) rejection of Claims 2-5 and 7-9 over Okazawa, Spackman, and JP 64-20185, Applicants respectfully submit that the cited combination of references fails to teach or suggest all of the claimed limitations.

Claim 2

Regarding Claim 2, Applicants submit that one of ordinary skill in the art at the time of the presently-claimed invention would not have been motivated to combine the cited references, as suggested by the Examiner, because there is no suggestion or motivation for doing so in the

references themselves or in the knowledge available to one of ordinary skill in the art without resorting to impermissible hindsight.

The Examiner argues that the cited references are combinable because they are from the same field of endeavor, image-forming apparatuses. (Office Action, p. 6). However, “[t]he mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination.” (MPEP 2143.01, *citing In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990), *emphasis in original*). Although a prior art device may be modified in a certain way, there must be a suggestion or motivation for doing so in the reference. (*Id.*). Therefore, the Examiner’s statement that the references are combinable because they are of the same field of art is an insufficient basis for supporting a motivation to combine the references. Additionally, all of the cited references are not directed to the same type of apparatus, as suggested by the Examiner. While Okazawa and the present invention are directed to printing apparatuses, Spackman is not directed to a printing apparatus, but rather to a process and apparatus for generating halftoning or dither values, which may be peripherally connected to a printing apparatus, and JP 64-20185 is directed to an electronic typewriter.

The Examiner also argues that a motivation for combining the cited references would have been to operate only the image memory and interface processor in an energy-saving mode in order to reduce power consumption and in order to allow the apparatus to have a recovery program available in an area which is not deactivated, while allowing the printing device to store image data even during an energy saving mode, in order to free the transmitting device sooner

and to begin the printing process sooner. While, as noted by the Examiner, Okazawa discusses reducing power consumption by having control processing performed by the IOP 111, rather than by the CPU 114, the Examiner has provided no teaching or suggestion of the above-mentioned motivation in either the references themselves or in the knowledge available to one of ordinary skill in the art without resorting to impermissible hindsight.

Additionally, regarding Claim 2, even assuming, *arguendo*, that there would have been motivation for the combination of the cited references, the cited combination fails to teach or suggest an image-processing dedicated control circuit having an image memory, as claimed. As discussed above with respect to Claim 6, Okazawa fails to teach or suggest this limitation. Applicants submit that both Spackman and JP 64-20185 also fail to teach or suggest this limitation.

Further, Applicants submit that the cited combination of references fails to teach or suggest a recovery program stored in image memory (the image memory for temporarily storing image data), as claimed.

The Examiner acknowledges that Okazawa fails to teach or suggest this limitation. (Office Action, p. 6). Therefore, the Examiner relies on Spackman and JP 64-20185 to teach this limitation. As noted by the Examiner, Spackman describes storing image data, to be used in calculations by a central processing unit, along with a program defining a sequence of operations, within a single memory 6. (Spackman, col. 4, lns. 19-22). While the Examiner also argues that Spackman discloses this unified memory as a way to optimize the usage of the

memory (Office Action, p. 8), there is no such suggestion in the reference, and therefore, this statement is merely impermissible hindsight on the part of the Examiner.

Applicants additionally submit that the single memory 6, of Spackman, discussed above, is not equivalent to the image memory, as claimed. The claimed image memory is “for temporarily storing image data,” as recited. However, the portion of the Spackman printing apparatus which performs this function is the frame buffer 10, and not the memory 6. (Fig. 1, and col. 4, lns. 27-32 and 40-51). As described, the image data stored in the memory 6 is not image data which is to be printed, but rather image data which is used in the halftoning and dithering processes of the Spackman invention. Further, there is no teaching or suggestion that any operation program is stored in the frame buffer 10. Therefore, Spackman fails to teach or suggest an image memory, as claimed, which temporarily stores image data for printing and any operation programs, as claimed.

Therefore, at least in view of the above-discussed lack of a motivation to combine and failure of the cited references to teach or suggest each claimed limitation, Applicants submit that Claim 2 is patentable over the cited combination of references.

Claims 3-5

Regarding the Examiner’s §103(a) rejection of Claims 3-5, Applicants submit that these claims are patentable at least by virtue of their dependence on Claim 2, as discussed above, and for the following additional reasons.

Claim 3. Regarding Claim 3, Applicants submit that the cited combination of references fails to teach or suggest an interface circuit comprised within the print controller, as claimed. The Examiner refers to Okazawa as teaching this limitation. (Office Action, p. 7). However, as discussed above with respect to Claim 6, Okazawa fails to teach or suggest this limitation.

The cited combination of references also fails to teach or suggest a program memory which stores both a sequence program for controlling a printing sequence, and a recovery program, as claimed. The Examiner refers to ROM 115 of Okazawa as teaching this limitation. (Office Action, p. 7). However, as described in Okazawa, while ROM 115 stores a program for controlling the printing apparatus (col. 4, lns. 30-35 and 57-61), the RAM 116 is the only memory which receives power during the power-saving mode, and therefore, the recovery program must be stored in the RAM 116 as the Examiner describes on page 5 of the Office Action. (Okazawa, Fig. 1, and col. 7, lns. 35-40). Therefore, according to Okazawa, the program for controlling the printing sequence and the recovery program are not stored in the same memory, and thus Okazawa fails to teach or suggest this claimed limitation.

Further, the cited combination of references fails to teach or suggest a control circuit, as claimed, which incorporates image memory. As in his rejection of Claim 2, the Examiner acknowledges that Okazawa fails to teach or suggest this limitation, and therefore relies on Spackman to teach this limitation. (Office Action, p. 8). However, as discussed above, with respect to Claim 2, there is no teaching or suggestion in Spackman of storing a recovery program or any operational program in an image memory, for temporarily storing the image data, as claimed.

Claim 4. Regarding Claim 4, Applicants submit that the cited combination of references fails to teach or suggest storing an interface control program in program memory, and when a normal operating mode is shifted to a power saving mode, storing the interface circuit in image memory, as claimed. As discussed above, the interface circuit of Okazawa is interface section 150, which, as illustrated in Fig. 1, and as described, is separate from both ROM 115 and RAM 116, and is not contained within controller section 110, as discussed above with respect to Claim 6. The Examiner argues that the combination of the cited references “make obvious that when switching to energy saving mode, the program controlling the interface circuit is transferred to image memory.” (Office Action, p. 9) However, as discussed above with respect to Claim 2, there is no teaching or motivation in any of the cited references for moving any control program to image memory, as claimed. Further, the mere statement by the Examiner that such a limitation would have been obvious, is unsupported in any of the cited references, and therefore merely amounts to impermissible hindsight.

Claim 7

Regarding Claim 7, and for the same reasons as presented above with respect to Claims 2-5, Applicants submit that the cited combination of references fails to teach or suggest permitting a CPU to load a recovery program into image memory within an image-processing dedicated control circuit, when a normal operating mode is shifted to a power saving mode, as claimed. Applicants therefore submit that Claim 7 is patentable over the cited combination of references.

Claim 8

Regarding Claim 8, and for the same reasons presented above with respect to Claim 2, Applicants submit that the cited combination of references fails to teach or suggest a recovery program stored in an image memory within an image-processing dedicated control circuit, as claimed. Applicants therefore submit that Claim 8 is patentable over the cited combination of references.

Claim 9

Regarding Claim 9, and for the same reasons presented above with respect to Claim 2, Applicants submit that the cited combination of references fails to teach or suggest permitting a CPU to load a recovery program into image memory within an image-processing dedicated control circuit, or permitting a CPU to execute a recovery program stored in the image memory, as claimed. Applicants therefore submit that Claim 9 is patentable over the cited combination of references.

Conclusion Claims 2-5 and 7-9

Therefore, for at least the above-discussed reasons, Applicants submit that all of Claims 2-5 and 7-9 are patentable over the cited combination of Okazawa, Spackman, and JP 64-20185 and respectfully request that the Examiner's §103(a) rejection of these claims be reconsidered and withdrawn.

New Claims

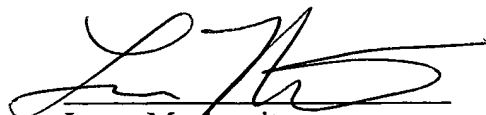
Applicants have added new Claims 10-12 in order more fully to cover various aspects of Applicants' invention as disclosed in the specification. Applicants submit that Claim 10 is patentable at least by virtue of its dependence on Claim 2, and that Claims 11 and 12 are patentable at least by virtue of their dependence on Claim 6.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned attorney at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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